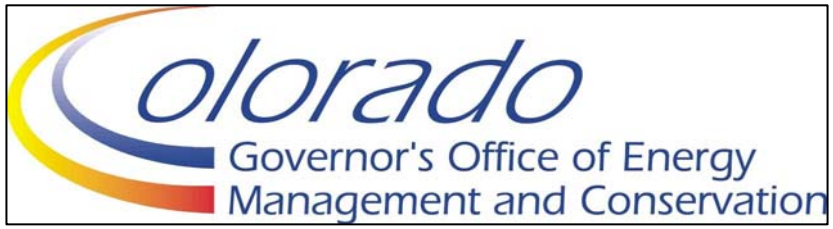

11th National Renewable Energy Marketing Conference

Using RECs to Supplement State Energy Programs: Limitations, Prospects and Alternatives

December 6, 2006

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Office of Energy Management and Conservation Overview

- State energy office for Colorado
- Demonstration projects and public education
- Weatherization, energy efficiency, alternative fuels and renewable energy technologies
- Federally funded, founded in 1977

Policy Environment

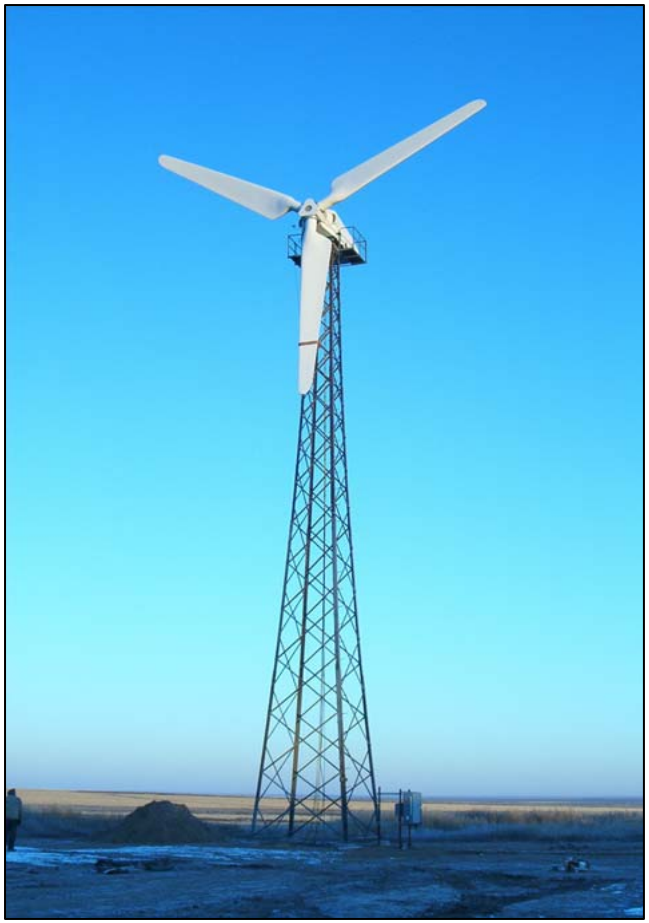
- **Amendment 37**
  - **1st state to adopt RPS through ballot (Nov. '04)**
  - **3% by 2007, 6% by 2011, 10% by 2015**
  - **4% of each amount from solar; ½ on-site**
  - **Utilities with 40,000+ customers**
- **RECs can be used for RPS**
  - **Generated after Jan. 1, 2004**
  - **No geographic constraints**
  - **1.25 multiplier**
- **Expected results: more big wind and some solar; other small-scale renewables still face hurdles**

Policy Context

- **Largest utility has already met RPS requirements**
- **REAs can opt out of RPS by vote**
- **All-source requirements: REAs can buy 5% outside of G&T - but at huge risk**
- **“Net” metering policies generally at low rates**
- **Limited incentives for small renewables**

Can RECs Help Finance Small-Scale Renewables?

Resource:	Cost/kWh:
Small wind	9-15 ¢
Large wind	3-6 ¢
Solar PV	25-30 ¢
Mini-hydro	2-5 ¢
Biomass	6-13 ¢
AD	3-6 ¢
Geothermal	4-7 ¢



Idea #1: Aggregation Fund

- **Objective: create an incentive by enabling the "little guys" to access REC income. Get *NEW* renewables on the ground.**
- **Conduct outreach and education**
- **Serve as an "honest broker" to aggregate projects and facilitate auctions**
- **Reduce transactions costs with certifiers and REC marketers**
- **Use % of income to fund new projects**
- **Quantify and track environmental benefits**

Questions

- How small is “small”?
- How much REC income would be needed to create a real incentive?
- On-grid, off-grid or both?
- Should this tie into the RPS? Green-e?
- Who would be eligible for grants?
- Key question: is there sufficient volume?

If I Had $1.25 Million…

	1 Year	20 Years	% of Project Cost @ $2.25
RECs @ $2.25/MWh	555,556 MWh		N/A
Green power @ $10.46/MWh	119,503 MWh		52,560 x $10.46 = $549,778 or 44% - costs
1 MW turbine, 30% cap.	2,628 MWh	52,560 MWh	$118,260 or 9% of project

If I Had $38,000…

	1 Year	20 Years	% of Project Cost @ $2.25
RECs @ $2.25/MWh	16,889 MWh		N/A
Green power @ $10.46/MWh	3,633 MWh		$10.46 x 526 = $5,502 or 14.5%
Bergey 10kW 12 mph, 30% capacity	26.28 MWh	526 MWh	$1,183 or 3.1%. At $20/REC, $10,520 or 27.8%

Initial Conclusions

- **Special branding and pricing needed to make program viable**
- **Very limited number of small-scale projects available; some already claimed by utilities**
- **Financing for *NEW* renewables cannot come from RECs alone**

New Concept Under Consideration

- **Create grantmaking fund for small renewables, using multiple sources**
  - **% of large REC transactions**
  - **% of excess RECs from utilities**
  - **Direct corporate investment (vs. REC purchasing)**
  - **Contributions from universities, cities, non-profits**
  - **Re-investment of RECs (100%) aggregated from grant projects**
  - **Systems Benefit Charge? Green pricing revenues?**

New Challenges

- **Competition amongst brokers for competitive advantage**
- **Wrestling RECs from utilities/PUC/rate base**
- **Ratepayer money stays in service territory**
- **Bang for the buck – 500,000 MWh vs. 2,600 MWh; immediate ROI vs. photo opportunity down the road**

Conclusions

- **RECs have greatest value in supporting large-scale projects (economies of scale and economies of production – MWh/$)**
- **State-level activity (CO) too small for aggregation**
- **Policy changes (SBC, set aside for small wind, biomass, etc. would be helpful)**
- **Suggestions welcome!**

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